



The Minuteman Repeater Association

The Minuteman

Volume 36, Number 3

January 2007



Membership Meeting

17 January 2007 @ 7:30 PM @ MEMA in Framingham

The 3Y0X DX Expedition

Presented by AE1C — Jim Podsiadlo

Jim will present the DVD from this DX expedition to Peter Island, a small island off Antarctica in the Bellinghausen Sea. In Feb. 2006 a bunch of hams traveled to this COLD and inhuman place for an incredible DXpedition. They made over 86K QSOs. Don't miss this meeting!!!

Talk in freq: 147.27

More Information on Page 3

President's Corner ~ Bob Dematia, K1IW

The latest HRO catalog arrived in the mail today. I smiled in amusement at the ad on the front cover. One of the major radio manufacturers wants us to get excited about Solar Cycle 24. Solar Cycle 24 is expected to begin sometime early this year. Due to the sporadic nature of sunspots, astronomers use an average sunspot count : +/- 5 months of the current month, to declare the official minimum. This means the minimum may already of happened, since the latest average that can be calculated is August of last year. We won't know the true minimum until enough data is available.

Some believe another way to determine the start of the cycle is by monitoring the magnetic polarity of the sunspots. Sunspots, like magnets, have north and south poles. In odd cycle numbers (23, for example), the south pole appears west of the north pole in the northern hemisphere of the sun, and vice versa in the southern hemisphere. In even cycle numbers, this situation is reversed. On July 31st, scientists detected a small, short duration sunspot of the even-cycle type on the Sun's southern hemisphere. The spot was so small, that the scientists didn't number it, but maybe it is a sign of things to come.

Anyway, if sunspots are what motivate you, don't go running out to buy that IC-7800 just yet. It takes about 4 years from the start of a cycle to its maximum, so sunspot nirvana won't be here until 2011!

73, Bob—K1IW

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About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets on the 3rd Wednesday of September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is mailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Please join us.

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Email to the club leadership should be sent to contact@mmra.org. The MMRA maintains a web site at: <http://www.mmra.org/>

An email distribution list for club members named "MMRA" has been established at: <http://www.yahoogroups.com/>

No part of this newsletter can be copied or posted elsewhere without prior approval from the club. Your cooperation in this matter is greatly appreciated.

Repeater and Frequency Information

Location	MHz	PL	Call	Note
Bolton	29.620	131.8	W1OJ	Affiliated, PTL (+ FTL to 448.625)
Marlborough	53.810	71.9	W1BRI	PTL
Norwell	145.250	77.0	AC1M	Affiliated, PTL
Mendon	146.610	146.2	N1BHI	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.790	146.2	N1BE	PTL
Brookline *	146.820	146.2	K5TEC	FTL
Brookline	146.985	88.5	W1FCC	Affiliated, PTL
Marlborough	147.270	146.2	W1MRA	PTL
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	103.5	N1NOM	FTL
Marlborough	224.880	103.5	W1MRA	FTL
Weston	442.700	88.5	N1NOM	Network Hub 2 (PTL to Hub1 or 448.625)
Norwell	443.600	88.5	NS1N	Affiliated, PTL
Stoneham	446.725	88.5	W1DYJ	FTL
Mt. Wachusett	448.625	88.5	W1OJ	PTL (+ FTL to 29.620)
Milford	446.825	100.0	WA1QGU	Affiliated, PTL
Brookline	447.875	136.5	K1IW	Affiliated, FTL
Shrewsbury	449.575	88.5	W1BRI	FTL
Marlborough	449.925	88.5	W1MRA	Network Hub 1 (PTL to 448.625)
Marlborough	144.390	none	W1MRA	APRS Digipeater
???	145.630	146.2	W1MRA	Fox Box
Internet	Echolink node 94940			
	IRLP node 4133			
Notes: FTL = Full Time Linked (usually to Hub 1) PTL = Part Time Linked (on schedule or demand) Most repeaters link to the MMRA Hub 1, several can link to an alternate destination				
PL: PL is required to prevent interference. The code 750 will temporarily disable the MMRA PL on the 2M repeaters.				
Autopatch: Only the hub had a telephone line. Link to the hub if necessary, then bring up the autopatch using the 449.925 autopatch codes				
Control codes are sent to members upon receipt of dues.				
* temporarily in Marlborough				

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You can look at a lot more at
<http://www.peterone.com/>



Directions to the MMRA Meeting

From the West:

1. Take Mass Pike East to Exit 12 (Framingham Route 9).
2. Travel ~ 2 miles to MA State Police Headquarters.
3. MEMA is immediately after the State Police (MEMA has several tall communications towers).
4. Enter through the gate.
5. MEMA is underground. Enter building and follow the ramp to the reception desk.

From the East:

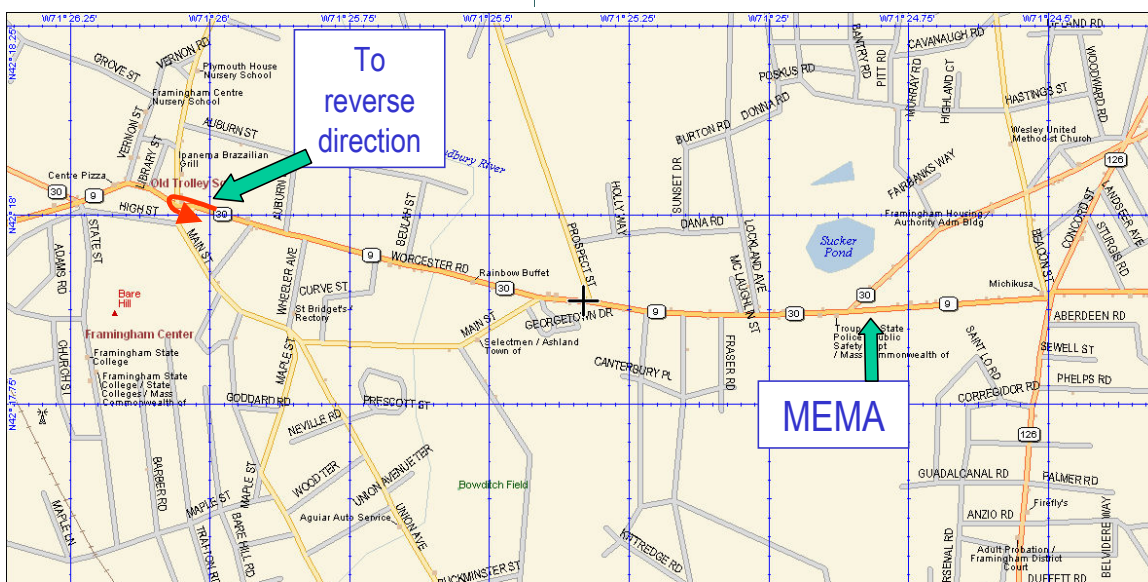
1. Take the Mass Pike West to Exit 13 (Route 30).
2. Take Route 30 West ~2 miles going through all lights until the end.

3. Bear right onto Route 9 Westbound.

4. The MEMA communication towers are visible across Route 9 on the eastbound side. Continue approximately 1.2 miles on Route 9 Westbound to intersection with Main Street/Edgell Street.
5. Bear right at this intersection to exit Route 9, then follow the signs to make a U-turn.
6. Follow Route 9 back east for ~1.2 miles to MA State Police Headquarters on the right. Now follow "From the West" # 3

From the North or South:

1. Take Route 128 (95) to Route 9 West (Exit 20B).
2. Follow Route 9 for approximately 8 miles. Now follow "From the East" #4



For those interested in dinner before the meeting, coordinate on 147.27

Repeater Update

Bryan Cerqua, W1BRI ~ Technical Officer

53.81 Marlboro:

The 50W pre-driver amp failed. The pre-driver amp drives a 3.5 dB attenuator before driving the 250W tube amp. The 50W board was replaced with another board and was found to be causing spurious interference to other 6 meter repeaters.

Replacing this board requires that the heat sink be removed off of the PA chassis and power transistor studs be removed from the heat sink slab, a messy job with all the white heat sink compound getting all over the place.

The noisy board ran for a few months before I had a chance to repair the original board with a new first stage transistor. The original board was installed a few weeks ago and as a result the repeater is back on the air with no sign of spurs.

442.700 Weston:

This repeater was constructed out of old parts from the 449.925 repeater. The transmitter is the old problematic 90W Quintron where the power output varies due to the poor tripler design. The receiver is a mobile

Testing in Bryan's Shop



MASTR II that was used as the control receiver on the original 147.27 repeater. The link radio for connecting to 449.925 was from the 146.82 Clay center repeater. (The '82 repeater is now using a Motorola M120 link radio.)

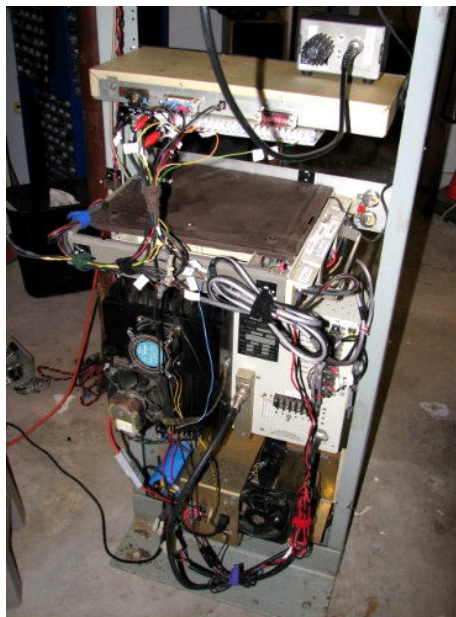
The hardest task was to re-crystal the oscillator module. This module is a temperature controlled assembly

Bryan and the Repeater



that is quite complex. The heater wire had to be replaced using wire removed from an old relay coil. The first time around the wires were wrapped too tightly and when it heated up the wires broke. I had to re-do it all over again a second time. All the repeater components were racked up using the old open frame rack that the

Rear View



Repeater Update —continued

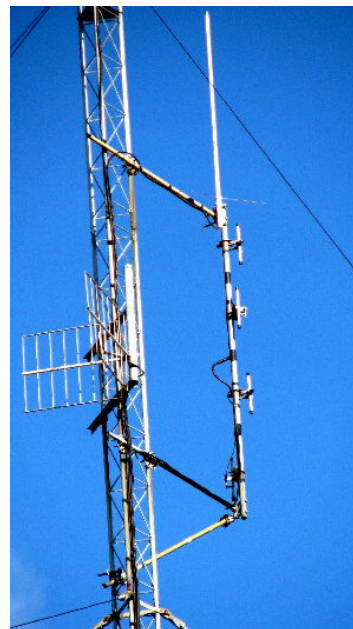
original 449.925 was in. The wiring of the controller was easy since Bob, K1IW, had retrofitted the DB25 connectors to a break out terminal strip. The 7K controller can easily be removed just by sliding off the break out assembly.

The repeater was installed on December 16 with the help of my brother and his truck.

Once the repeater was placed on the air I drove through Weston and quickly realized the repeater was deaf. I went back to the site and with the help of Joe, W1HAI, I was able to tighten up all the coax connections and things started working well enough to hear him from his Natick QTH. The repeater antenna was placed on the Weston tower many years ago, it's a 4 stacked dipole array with each dipole offset 90 degrees for an omni-directional pattern. The link radio is using the corner reflector pointed west towards Marlboro. The repeater seems to work best towards the west, not so good towards the east due most likely to being blocked by Prospect hill in Waltham.

So far the only repeater that has its link radio setup for channel 2 on 442.700 is the 146.82 repeater currently being tested in Marlboro. The link radio that was on the Weston 146.79 repeater was removed to update it for two channel operation and as a result, 146.79 and 224.70 repeaters can't be linked to 449.925.

Antennas



449.575 Shrewsbury:

This repeater has been off the air for a few weeks now. I had my ham friend Ray who still works at the Maxtor location take a look at it. According to Ray the power supply light is on and nothing looks abnormal. At some point I will have to get into the site and take a look at what is wrong with it, could be something as simple as a fuse or even worse the PA failed.

146.61 Mendon:

Plans are in place to visit the site soon to remove the Johnson link radio to update it for two channels for HUB1 and HUB2 operation. I also need to see if something has gone slightly wrong since the repeater was keying itself with transmit noise. As a quick fix the PL encode was disabled. Maybe something new at the site was added causing some extra site noise etc.

146.715 Stoneham:

This repeater still appears to have hearing problems and needs to be looked at.

146.67 Quincy:

This repeater has intermittent linking problems and needs to be looked at.

Summary Treasurer's Report Kevin Paetzold, K1KWP ~ Treasurer (As of 13 December 2006)

Income	2006-2007 dues	\$3570
	2007-2008 dues	635
	Donations	378
	Misc.	220
	TOTAL	\$4803
Expenses	Expenses to date	\$3076
	Known upcoming	1185
	TOTAL	\$4261

Summary

We would have ~\$542 in discretionary spending left before running an overall deficit year (this includes the \$635 in dues we already have collected for next year).

MMRA November Meeting

Larry Banks, W1DYJ

Dr. Gregory D. Troxel, N1DAM

Greg is a network researcher at BBN Technologies working on cognitive teams of software radios for the Department of Defense

Greg gave us an overview of software-defined radios, a new technology that is already changing Ham Radio. He discussed a free software radio package called GNU Radio and described a hardware front end for software radios—the USRP— that uses daughter-boards for various functions, from VHF and UHF receivers, to boards for IF use, and to transceivers for 440, 902, 1296 and 2400 MHz.

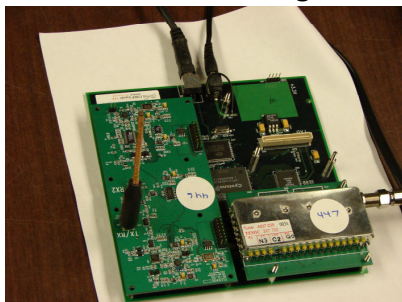
Before the Meeting



Demo Afterward



The Real Thing



The Future of Ham Radio — Ya should'a been there!

GNU Radio

(and a bit about the Universal Software Radio Peripheral)

Eric Blossom eb@comsec.com

presented by Greg Troxel, N1DAM gdt@ir.bbn.com

<http://www.gnuradio.org/>

MMRA: November 15, 2006

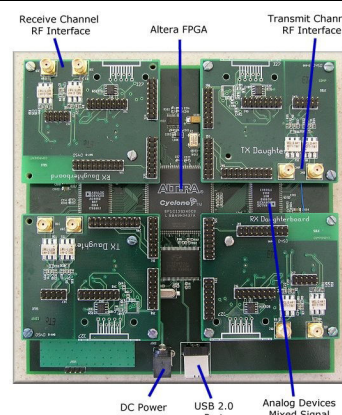
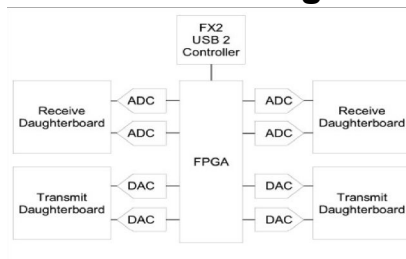
What's GNU Radio?

- **Free software** toolkit for:
 - **Building** and **deploying software radios**
 - **Learning** about DSP and **communication systems**
 - **Creating new** kinds of **radios**, modulations, protocols, development environments...
- Licensed under **GPL**
- A **community** effort

USRP

- 80% solution at 10% of the cost
- Low cost
- Small / portable
- Design is completely open
- Multiple coherent channels

USRP Block Diagram



Resources

- GNU Radio:
 - <http://www.gnu.org/software/gnuradio>
 - discuss-gnuradio mailing list
 - <http://www.gnuradio.org/trac/>
- USRP:
 - <http://www.ettus.com>

MMRA Leaders

President	Bob DeMattia	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Technical Officer	Bryan Cerqua	W1BRI
Director 2006-08	Clark Conti	N1NVK
Director 2006-08	Bill Hanrahan	W1WH
Director 2005-07	Steve Schwarm	W3EVE
Director 2005-07	Roger Coulson	WA1NVC
Emergency Coordinator	James Cahill	KB1LOY
Net Manager	Larry Banks	W1DYJ
Newsletter Editor	Larry Banks	W1DYJ
Public Service Coordinator	James Cahill	KB1LOY
VEC Liaison	Bill Wade	K1IJ
Web Page Editor	Bob DeMattia	K1IW

Newsletter Delivery

If you received this via US Mail, you might want to think about having it sent by eMail. You will receive it earlier, it will be in color, it may have MORE great content, and it will save the MMRA \$\$\$! Send your request to W1JMC@mmra.org.

Past Newsletters are available at <http://www.mmra.org/>

Don't Forget!

Tuesday's @ 8 PM
Technical, Informational
and Other Stuff Net
Larry Banks, W1DYJ

Most of the MMRA's repeaters are linked every Tuesday night for the MMRA TIAOS Net. Join us! Over the past two months we averaged five participants with a high of ten. This is a good way to keep up with what is happening with the MMRA as well as ask your ham related questions.

We are looking for a net control operator for the first Tuesday of each month – contact me at W1DYJ@mmra.org if you would like to try your hand at running a net some evening – we have a script that you can use to start with. This is good practice for a number of ham related operations, from emergency preparedness to contesting.

Current Net Control Operators:

Week 1 ??????	We Need You!
Week 2 W1EUJ	Dave Goncalves
Week 3 KB1KZI	Jimmy Devarie
Week 4 K1KWP	Kevin Paetzold
Week 5 W1DYJ	Larry Banks
(also substitute & Net Manager)	

Note that there was no net on 12/19 due to technical problems, and on 12/26 due to the Holiday.



MMRA VE Sessions

3rd Saturday of each Month
 9 AM at the Marlboro Public Library
Contact: Bill Wade, K1IJ
 781-891-9079 Evenings 6 to 10 PM,
 Weekends 8 AM to 10 PM.
Accredited by the ARRL VEC

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Calendar of Ham Radio Events

Public Service Events

See this web site for contact information

<http://purl.org/hamradio/publicservice/nediv>

Nothing Currently listed

New England Area Ham - Electronic Flea Markets

See this web site for contact information

<http://mit.edu/w1gsl/Public/ne-fleas>

17 Feb	Marlborough MA AARC
17 Mar	Pomfret CT ECARA
18 Mar	Henniker NH CVRC
31 Mar	Londonderry NH IRS
1 Apr	Framingham MA FARA
15 Apr	Cambridge MA FLEA at MIT
	[Third Sunday April thru October]
22 Apr	Enfield CT NEWS East VHF UHF Conf
14 Jul	Union ME PBARC
18 Aug	St Albans VT STARC
15 Sept	Forestdale RI RIFMRS

THE MINUTEMAN REPEATER ASSOCIATION

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WE'RE ON THE WEB!
[HTTP://WWW.MMRA.ORG/](http://www.mmra.org/)
